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HENRY A. WALLACE
Secretary of Agriculture

HUGH H. BENNETT
Chief, Soil Conservation Service

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LAND UTILIZATION AND THE NATIONAL WELFARE

By C. F. CLAYTON [1]

FARMING, or to use a broader term, agriculture, is the principal use of land in rural areas. The business of agriculture, broadly speaking, extends from the farm through various stages in the production process until the finished product reaches the ultimate consumer. In this process, transportation, storage, insurance, speculation, brokerage, credit, manufacturing, advertising, etc., are involved. Efficient organization for the use of land therefore implies, fundamentally, efficient organization of our resources on a national scale. Land use is not only likely to be maladjusted and economically inefficient, but it must necessarily be so if the industrial framework itself is maladjusted. That is a basic and primary factor in the problem of land-use adjustment. In view of this basic relationship of the organization of the farm to the general economy, we may well ask ourselves, waiving the international aspects of the question, whether or not the problems of land-use adjustment are susceptible of local attack. The answer is, of course, that the two problems cannot be divorced. Consequently, geographically considered, the problems of land-use adjustment are local, regional, and national in scope. Land-use problems are integrally related to the general economic and social structure.

A practical approach to problems of land-use adjustment, therefore, immediately raises a number of basic questions: (1) To what extent can helpful adjustments in land use be effected in local areas, independent of correlated regional and national adjustments? (2) To what extent are partial or piecemeal adjustments in land use for local areas worthwhile in themselves, and to what extent may such adjustments be expected to contribute to, facilitate, or effectuate the broader regional and national adjustments that impede effective adjustments in the local economy? (3) To what extent should the costs of land-use adjustments that contribute to the permanence and stability of the local and national economy be borne by the individual, the local group, or the Nation as a whole?

Land-use adjustment programs, when actually applied in a local area or in a region, involve answers to these questions. The complex character and broad scope of the problem may be illustrated by a brief consideration of the relationship of cultural, institutional, and organizational patterns to the formulation of programs of adjustment in land use.

The use of land is associated, to a degree which we often are slow to recognize, with a definite culture pattern. In referring broadly to these cultural relationships we speak, for example, of a pastoral economy, an agricultural economy, or an industrial economy. But within these broader culture patterns there are significant local orientations which are decisive in their influence upon the use of land. These differences are especially pronounced and of special significance in this country, both by reason of its geographic size and by reason of the rapidity of our industrial and social evolution.

The kind and amount of goods and services deemed essential to a satisfactory life by families comprising a community in the southern Appalachians is, in a very real sense, peculiar to these families and to their physical and economic environment. Their ways of thinking, their beliefs, their conventions, their disposition

[1] Chief, economic surveys division, Soil Conservation Service, Washington, D. C.

for energetic action or for physical and mental inertia all significantly condition their economic organization and ways of using or abusing land, and condition likewise their capacity to adjust their culture to fit such adjustments in land use as relationships external to their own local culture might seem to suggest or require. Programs of land-use adjustment that are contrary to the established culture pattern, when applied to such a population group, are almost certain to fail.

If this generalization is correct, then it appears that limitations on land use imposed by divergences in culture patterns are of two types: (1) Local land-use adjustments never can fully satisfy the theoretical conditions of complete economic specialization, division of labor, and that apportionment of the "factors of production" which would yield to each its maximum return among alternative lines of employment. That is to say, the established culture pattern fixes the limit within which land-use adjustments can be effected. The adjustment realized, therefore, must necessarily be partial and approximate, insofar as the local culture pattern differs significantly from the general culture pattern. Ideal adjustments, that is, adjustments which are ideal from the standpoint of the general economy, are further impeded by the fact that these locally divergent culture groups tend to have a high degree of immobility. People do not like to move to an unfamiliar environment. It is a fact of common observation that the so-called isolated groups are most resistant to any process of "uprooting." (2) If, then, the local economy must fit the local culture pattern, it follows that adjustments in land use to fit the national economic pattern will require the development of local culture patterns to fit the economy which, in the national setting, is appropriate for the particular area. This fact has a twofold significance. In the first place, it places stress upon the primary importance of education as a foundation for effective land-use adjustment, particularly in those areas which have become highly stratified in their cultural relationships. These conditions will be most pronounced among the older, more stable population groups. The second significant fact is that land-use adjustment must originate with the local groups immediately affected. It is through a process of adjustment and adaptation of the culture patterns of communities and groups that stability and integration of the national economy must be achieved.

Reference may be made to the Northern Great Plains to point the contrast between a relatively indigenous culture pattern that is characteristic of many communities in the southern Appalachians and a transplanted culture pattern established by the migration of families from eastern areas to the plains country In the eastern agricultural areas, each farm dwelling was situated on the farm. It was natural that these families, when transplanted to the plains country, would establish their family homes on the lands they expected to farm. The law, so far as the Public Domain was concerned, required this, but that is only to say that the legislators who passed the laws were governed by the same cultural backgrounds as the families who migrated to the plains. Considerations of distance from town, distance from the county seat, isolation from neighbors, difficulties of providing school facilities and similar matters were incapable of registering any significant effect on the pattern of settlement. The result is that today we have in the Northern Great Plains a transplanted culture pattern which is unadapted to the economy suited to the plains country.

It was natural, moreover, that the type of farming introduced by settlers in the plains area should be designed to conform to the pattern of culture which the settlers carried with them. It is true that the effort to set up in the semiarid West a system of farming patterned after the farms of the East has been tempered by the pressure of economic forces, but the culture transplanted to the plains still persists as a brake upon effective land-use adjustment. The plains country lends itself generally to the grouping of families into communities where the advantages of community life, access to schools, stores, etc., can be enjoyed by families, while, at the same time. ranching operations can be conducted at a distance from the home.

The errors made in the settlement of the plains country were certainly not those of the settlers alone. They were errors derived from our cultural traditions, and they were embodied in our homestead laws. There is, therefore, a public responsibility involved in the rectification of these errors. That responsibility derives both from the fact that the Federal Government encouraged the settlement of the plains country on a mistaken basis, and from the fact that the adjustments needed will represent a contribution to the conservation of our national resources much more significant than the immediate benefits to individual ranchers or farm operators as derived from improvements in their conditions of living.

Adjustments in the use of land are also conditioned by a wide range of institutional relationships. For example, the tax structure of many of our western States was developed on wholly erroneous ideas as to the productivity of agricultural lands. Lands

suited only to grazing are assessed as cultivated lands. This impedes, and in some instances, makes impossible effective land-use adjustments. It undoubtedly has contributed to the growth of tax delinquency and has undermined the basis of taxation in many western counties. Schools, roads and public facilities have been developed in the framework of the fiscal and economic structure that was erroneously assumed to be appropriate for these areas.

The burden of mortgaged debt, founded upon the same institutional structure, imposes a further limitation upon land-use adjustment. Investments in land were too often based upon purely speculative values. In addition to placing a heavy burden of mortgage debt on settlers who purchased land, these speculative values have caused lands to be held by nonresident owners with the hope of unloading them in years of good rainfall or unusually favorable economic outlook. The complex pattern of land ownership presents an institutional situation of serious consequence to any effort to effect adjustments in land use. These institutional factors tend to fix the current situation, to establish rigidities in the current economic organization, and thus to impede the necessary adjustments. If we are able to profit by experience, we should recognize, therefore, the importance of maintaining a high degree of flexibility in the institutional framework that conditions types of land use. Taxation should rest upon a flexible basis. Land tenure, including land ownership, should permit the maximum degree of flexibility in the adjustment of operating units to changing economic conditions.

There is still a broader aspect of the relation of our institutional structure to adjustments in land use. As has been pointed out, agriculture as an industry extends in a very real sense from the farm to the consumer. Agricultural adjustment involves the formulation and carrying out of policies that are national in their scope and application. Such policies bring the Federal Government into a direct relationship with the individual farm and farmer to a degree never before known, and never before needed, in our history.

As these national programs impinge upon the individual farmer, he finds that normal political processes give no adequate basis for expression of his views and his neighbors' specifically with regard to the application of a particular program to his community and to his farm. Consequently, there is need for an institutional process that will enable individuals and local communities to give direct expression of their views with respect to specific programs of adjustment. Until such an institutional mechanism has become established and is enabled to function, difficulties must necessarily be encountered in integrating national objectives with local needs and conditions.

The organizational pattern of our industrial system must also be taken into account in considering questions of adjustment in the use of land. In its horizontal organization, farming is carried on by numerous individual farm units. Adjustments in the acreage of farms, in the number, combination and proportion of enterprises embraced by a farm unit, and in the labor and capital employed, are involved in the achievement of maximum efficiency in the use of land for farming purposes. But the working out of these adjustments in response to price and cost relationships inevitably encounters limitations: Population does not shift quickly in response to shifts in economic opportunities; division of labor and specialization are much more limited in their application to farming than to numerous other types of industry; land of a specific grade and quality cannot be shifted like a factory or an industrial plant from one point to another; and there are other reasons also for these limitations.

In its vertical organization, agriculture as an industry embraces, in addition to the individual farm business unit, a whole range of business institutions—banks, railroads, warehouse and storage facilities, commodity exchanges, manufacturing and processing plants, manufacturers of agricultural machinery, etc. Any maladjustments in the economic structure, particularly of that portion directly related to the "vertical" organization of the agricultural industry, will, therefore, be directly reflected in the organization of farms. A farm that is economically well organized to fit a maladjusted general economic structure may be poorly organized from the standpoint of maximum national economic efficiency and from the standpoint of conservation and the national welfare. Corrections in the misuse of land may be contingent upon the correction of maladjustments in our general economic organization, directly or indirectly related to the organization of the individual farm.

Conservation of land presents a problem of general economic organization, as well as the problem of individual farm organization. Indeed, considerations of general economic organization are perhaps much more decisive in this regard than considerations of individual farm organization. It is nevertheless true that no significant conservation of agricultural land can be effected except to the degree that this conservation takes place on the individual farm. It is the farmer who chiefly uses the land. It is the farmer who must be depended upon, in the last analysis, to conserve the land.

To what degree can this conservation be effected by cooperation with farmers in local areas, independent of broader adjustments in our national economy? Certainly it is clear that only limited ends can be reached by resting the full responsibility upon the farmer. The adjustments which the individual farmer and farm community can make to meet the requirements of a maladjusted national economy may give to the farmer and the locality the maximum short-run benefits obtainable, and yet be wholly inadequate or even detrimental from the standpoint of long-term conservation. While the private needs of the farmer may often appear to conflict with the social ends of conservation, it must be recognized that the impediments to the socially efficient use of land do not rest upon the individual farm or the individual farmer alone or upon agriculture as an industry alone.

These general considerations suggest that a wise land-utilization program is fundamental to the development of an efficient and stable social and industrial economy. Such a program should be pointed to the conservation of our resources through the efficient use of land, but we should recognize that efficient use of land is a relative term and that a balanced national economy is a necessary prerequisite to socially efficient land use. The efficiency of a "business unit" is a function of private prosperity; the efficiency of land use is a function of national welfare.

MANAGEMENT OF LANDS HELD UNDER TITLE III OF THE BANKHEAD-JONES FARM TENANT ACT—By EDWARD G. GREST [1]

THE lands held under title III of the Bankhead-Jones Farm Tenant Act were largely worn out as a result of abuse and misuse at the time they were purchased by the Federal Government. They were occupied by families who no longer were able to support themselves satisfactorily from the production of the land and, in a great many instances, were dependent for livelihood upon some type of public aid. Many of the families occupying lands within the area and adjoining the area but not proposed for purchase were in similar condition or were approaching it. The problems facing those responsible for carrying out the complete land-adjustment program involved, on the one hand, changing the use of the land to a use to which it was better adapted and, on the other hand, relocation and rehabilitation of families occupying the lands purchased and rehabilitation of families occupying the lands not proposed for purchase but included in the area of adjustment.

The "area of adjustment" is the area within which land-use adjustments may be attained through added opportunities made available to the families through purchase, development, and management of project lands by the Government. Although acquisition of the land, relocation of the families occupying the lands purchased, and development of these lands contribute materially to the carrying out of a land-use adjustment program, the burden of completing the job and making it effective rests on the management program. To accomplish this, the lands in most instances will have to be used to the fullest extent possible, consistent with restoration and conservation of the resources, to provide a better standard of living and a basis for a more stable livelihood for the families living on intervening and adjacent lands.

During the process of planning and developing a project, rather definite determinations are made regarding the future use of the land. It may be assumed that in planning the future use the most intensive use is designated as consistent with restoration and conservation of the land, with the needs of the community, and with the objective of providing a basis for a better standard of living. These uses involve grazing or pasture, forestry, recreation, and wildlife protection and conservation.

In planning a program of management for the grazing or pasture resources of a project, two important factors must be kept in mind. These are (1) restoration of the land and cover at the greatest possible rate and (2) the production needs of farm or ranch operators within the land-use adjustment area to provide livelihood for their families or to remain in business. Often it may be necessary to sacrifice some speed of recovery in order not to disrupt seriously the economy of the area. This is particularly true in range areas that were overstocked, and where the purchase program merely removed crop farmers with very small numbers of livestock. If the range is overstocked, the stockmen should be required to reduce the numbers of livestock so as to permit appreciable improvement under the prevailing conditions. These adjustments must be

[1] Chief, land management division, Soil Conservation Service, Washington, D. C

made in such a way as to cause as little financial inconvenience as possible to the stockmen; reduction to provide for the quickest possible recovery of the range might ruin the operators and do more harm than good. Under certain conditions it is difficult to determine the proper balance between rapid restoration of the range and continued financial stability of the operators. In recent years, as is well known, the reduction of stock numbers during and after periods of continued drought made possible a phenomenal recovery of the range with recurrence of normal rainfall.

A plan of management for the forest area of a project must include its protection from fire and other controllable hazards, and its utilization to provide a continuous income at a rate as constant as possible and commencing as soon as the development program is completed, or prior to that date if the program of development is minor and some of the timber is available for harvest. The idea is to provide supplementary income for occupants of farms in the community who require it for a satisfactory living. A constant source or gradually increasing source of supplementary income from the harvest of forest products will produce a social and economic condition in the area, far superior to intermittent or delayed harvesting of timber resources although the total return might be somewhat greater under the latter procedure. On projects where the welfare of the families in the area of adjustment is dependent upon supplementary income from outside work and none is available except that provided by the project, it would be extremely desirable to have funds available to provide employment and at the same time improve the property. The needs for such funds would gradually decrease as harvesting of forest products on the project increased. The development of such areas at a rather moderate pace and carrying on developments over a period of years is much to be preferred to an intensive program of development to be completed in 3 or 4 years. The former type of development program would not require bringing in labor from outside the adjustment area and would be a means of providing the minimum of supplementary income to the families until the harvesting of forest products is adequate to provide the necessary supplementary income.

Recreational developments have received varying degrees of emphasis in the projects. These developments include picnic areas, bathing and boating facilities, vacation cabins, group camps, and combination buildings commonly referred to as lodges. In many instances artificial lakes have been constructed to provide bases for recreational developments. As a general rule, the nature of such developments on projects was dependent upon the adaptability of the project for such use, demands for such facilities in the area and to some extent upon opinions of the individuals responsible for planning the project. The approach to the problem of management of these facilities is of necessity very different from that of range, pasture, and forest management. The group camping facilities were intended for the use of organizations fostering educational and recreational programs for rural youth groups and also for urban youth groups, insofar as possible.

Considerable attention has been given to improving conditions for wildlife and to restocking some of the areas with indigenous species. The project lands will be managed as wildlife refuges, controlled hunting, or fishing areas, or as areas open to the taking of game or fish in accordance with existing State or Federal laws. The management practices followed will depend upon conditions on the project and surrounding areas.

The land management program should be so planned that restoration of the cover, stabilization of the land and fertility improvement may continue under controlled and proper utilization.

This program of management should not be confined to the lands purchased but should involve proper use and management of privately owned lands within the area of adjustment. We know from experience that considerable effort and time will be required to bring about a satisfactory change in the use and management of the privately owned lands. It will be the duty of technicians to prepare farm or ranch conservation plans. The needs for additional resources in the form of land, livestock, equipment, or employment will have to be determined for each family; an exact determination will have to be made as to the extent to which these needs can be supplied in connection with the use and management of the Government-owned property in the area. Relations between tenant and landlord may need to be improved; and families should be gradually educated to new methods of farming and new ways for making a living.

Not all land-use adjustment projects transferred to title III of the Bankhead-Jones Farm Tenant Act are administered by the Soil Conservation Service. Some are being administered by the Forest Service, others by the Bureau of Biological Survey, and others by State agencies under cooperative agreements. In general, however, those projects involving to a considerable degree adjustments in the farm or ranch organization within and surrounding the project area

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are being administered by the Soil Conservation Service and this includes the larger share of all lands held under title III. In addition, the Soil Conservation Service acts somewhat as landlord to projects administered by State agencies and of the type mentioned above. The Forest Service is administering a number of projects which are largely forest in character and which involve little, if any, adjustment in farm organization, and represents the Federal Government in connection with such projects under administration of State agencies. The Biological Survey has these same responsibilities for projects that are of vital importance to the program of that Bureau.

The question may be raised as to why lands purchased under a Federal program of land-use adjustment should be administered by a State agency. Early in this program it was determined as a policy that some of these lands be made available to appropriate State agencies under long-term agreements. These agencies include State conservation departments, forestry departments, colleges, and universities. It is believed that with State administration of some of the project lands, the interest in land-use adjustments of this type will become broader, that the demonstrational value of projects will be increased, that State departments will establish programs of this type with State funds, and that as a net result of all of these the program will be advanced more rapidly than by Federal effort alone. In addition, it is believed that the administration of these lands will strengthen and tend to stabilize some of the State agencies involved.

Some of the projects in the range area under the jurisdiction of the Soil Conservation Service are being administered through cooperative grazing associations organized under State law. The members of these associations are stockmen eligible to use Government-owned land. The association through its board of directors handles such matters as the leasing of State, county, and privately owned land, issuing grazing permits, collecting fees, control of the range, and maintenance of facilities including water sources, fences, etc. The Soil Conservation Service establishes the grazing fee to be paid the Government by the association, the carrying capacity of all the range used by members of the association, the grazing season, and the criteria to be used in distributing grazing privileges among members of the association. The association leases all land within the area not owned or controlled by stockmen operating in the area. This method of administration is in accordance with the policy of the Department and has proved very successful. It introduces a degree of self-government in the use of the range, it tends to produce a greater interest in the goal to be accomplished and thus a higher degree of cooperation, and it reduces the cost to the Service for administration and maintenance.

The advantages of administering these lands through local organizations will, no doubt, become more and more apparent, and as a result there will be a growing tendency toward making the lands available to local organizations and organizing local associations of one type or another where none exist. At present it is thought that the soil conservation district governing body will prove a desirable local agency through which to administer project lands. Where established, districts will no doubt be given an opportunity to demonstrate the feasibility of this method of administration.

As pointed out earlier in this article, the administration of recreational facilities introduces some special problems. These can be overcome by placing the operation of these facilities in the hands of some local organization or by having them operated by a concessionaire. Under either type of operation, considerable overseeing will be required by the Government, but by exercising proper care in selecting the local organization or concessionaire, there is no particular reason why either method of operation should not be successful.

The problems confronted in connection with the land-management program include the question of charges to be made for use privileges to be granted, the basis upon which use privileges should be distributed between applicants or eligibles for such privileges, and the relocation and/or rehabilitation of families residing on the lands purchased.

In establishing charges for the various privileges to be granted, the aim is to arrive at a rate equal to the value of the privilege. This rate is difficult to determine and, in some instances, experience will be the main guide, while in others studies will have to be made before equitable rates sufficiently flexible to take care of changing conditions can be established. Until such studies are made, rates will have to be established on as equitable a basis as possible by taking into consideration all available information.

Since the resources on any one project usually are limited in comparison to the demand and needs for them, care must be exercised in distributing use privileges. Objectives of the project, needs of the families to be assisted, prior rights of operators in the area, and

(Continued on p. 215)

Portion of a 200-acre slash pine planting, Poinsett land utilization project, at end of third growing season. Growth during the past year—an increase in height which should continue for 15 to 20 years—is indicated by the positions of the hands of the man at the left.

NATURE AGAIN HAS HER WAY ON THE POINSETT PROJECT

By L. J. LEFFELMAN [1]

IF NATURE can be credited with purposeful action, then the evidence of the past two centuries indicates that she never intended the sandhills of Sumter County, S. C., to be other than a wilderness beauty spot adapted primarily for forestry, wildlife, and recreational uses.

Rising above the humid swamps of the Wateree River, the sandhills once were covered with a magnificent growth of longleaf pine. Along the streams and swamps grew red and black and tupelo gum, cypress, red and white oak, and southern white cedar. Wildlife and vegetation flourished in almost tropical abundance.

But if the sandhills lay under some beneficent spell, it was quickly broken by the blighting touch of civilization. The virgin forests were cut without any thought of the future and repeated fires have since taken their toll. When clearings were planted to cotton and corn the land seemed to lose its productive power. Dwarfed scrub oak has taken over many areas once occupied by the giants of the forest.

It was nearly two centuries ago that the first traders came by the road from the backcountry to bring their wares to Manchester Landing, at the head of navigation on the Wateree River. As early as 1800, the taverns and shops of nearby Manchester were well known to travelers by stage along old King's Highway from Charleston to the upcountry.

Twice during the past century a railroad has been built from Sumter to Manchester, only to be abandoned later. For a considerable time cotton from the large plantations along the Wateree River and rice and indigo from the river swamps, made the town an important shipping point. Manchester was listed by Simms in his Geography of South Carolina (1840) as 1 of the 10 largest towns in South Carolina. Today a graveyard overgrown with vines and trees is the only evidence that Manchester ever existed.

This did not come about as the result of any one factor. But with the land stripped of its wealth of

[1] Chief, regional land-management division, Southeastern Region, Soil Conservation Service, Atlanta, Ga.

native forest, ravaged by war, beset by changes in the economy of plantation days, and without industrial resources, Manchester became isolated by new transportation developments and finally vanished from the earth, leaving behind on small unproductive farms only a backwash of its once prosperous population.

Retreating before the strange transformation that had come over the land, deer, wild turkey, and other game had long before sought shelter in the well-nigh inpenetrable haven of the river swamps. Only scattered pines, scrub oak, and abandoned fields were left of the magnificent forest, and only a few white marble slabs of all the gay social life and thriving commerce. Man and Nature alike had abandoned the land to its fate.

This was the scene that the sandhills of Sumter County presented in 1935 when the Poinsett Land Utilization project was established. Although erosion had not been a factor in the plight of the land and its people (the deep sand quickly absorbs even the heaviest rainfall) the unproductive character of the sandy soil and the lack of continuing natural resources made the problem much the same as that of severely eroded areas.

Conditions had reached such a point in 1935 that with few exceptions the 116 families, mostly Negroes, on the approximately 30,000 acres now purchased were living in squalor. Many of the houses were only one-room shacks, some of them with dirt floors. These families, dependent almost entirely upon cotton for a living, received virtually no return for their labor, for in many cases it required 10 acres to produce a single bale. Taxes had long been delinquent on most of the farms, but because the land was unsuitable for agriculture it was useless to attempt to sell the farms to satisfy tax liens.

Recognizing the complex nature of the problem, a group of Sumter County citizens sought to find a solution that would at once relieve the condition of the people, take the submarginal land out of production, and demonstrate a well-balanced land-development program applicable to the extensive sandhills formation that stretches in a southwesterly line along the upper boundary of the Atlantic Coastal Plain at a distance of 40 to 60 miles from the coast. State Forester H. A. Smith actively assisted in working out the problem. Purchase of nearly 30,000 acres of land by the Federal Government, and the initiation of a multiple land-use program in the area was the result.

If the devastation of the sandhills can be attributed to a thwarting of Nature's purpose, then the new trend events have taken has had a very wholesome effect. On land where cotton and corn could not be grown successfully, excellent survival has been obtained with more than 4 million longleaf and slash pines. The 4,000 acres reforested to pines has transformed many of the abandoned fields to waving oceans of green. The seven lakes that have been developed, with a total area of 1,800 acres, are alive with fish from the project's five rearing ponds. Big Bay, the largest of the lakes, has over a thousand acres of open water. Wood duck, once nearly extinct insofar as the sandhills were concerned, are nesting again along the shallow edges of the larger lakes.

A scientific appraisal of the game population has been made by the warden in charge of the wildlife program since the project was taken over by the State Commission of Forestry in January 1939. A quail census in 1935 showed an average of only 1 bird to 25 acres. Four years later, after hunting had been prohibited, fire protection established, and extensive plantings made to provide food and cover for game, another census showed an average of 1 bird to 4 acres. Hunting and fishing are still prohibited, but will be permitted eventually under strict State regulation.

Although a game farm has been operated in connection with the project throughout the development period, the increase in quail on the Poinsett project has been due largely to a natural increase as a result of improved habitat, fire protection, and other measures. Under expert management, virtually all the 6,000 quail produced annually during the past few years have been released on other projects in South Carolina, Georgia, and Alabama.

The two groups of cottages, for white and colored respectively, that have been built around Burnt Gin and Mill Creek Lakes to provide group camping facilities for such organizations as 4–H Clubs and Boy Scouts, were designed to blend with the natural landscape. Only the two water tanks, towering above clumps of pines, indicate that some compromise has been made with the wilderness for the sake of water and sanitation.

Even an old railroad fill, built across a wide depression through which a small stream runs, has been robbed of its sinister implications by closing the culvert provided for the stream and using the fill as a dam. The embankment served as part of the roadbed for the Wilmington & Manchester Railroad, built between 1835 and 1840, which was the nucleus of the Atlantic Coast Line System. This portion of the road was abandoned shortly after the War between the States.

When the project was established in 1935, it was

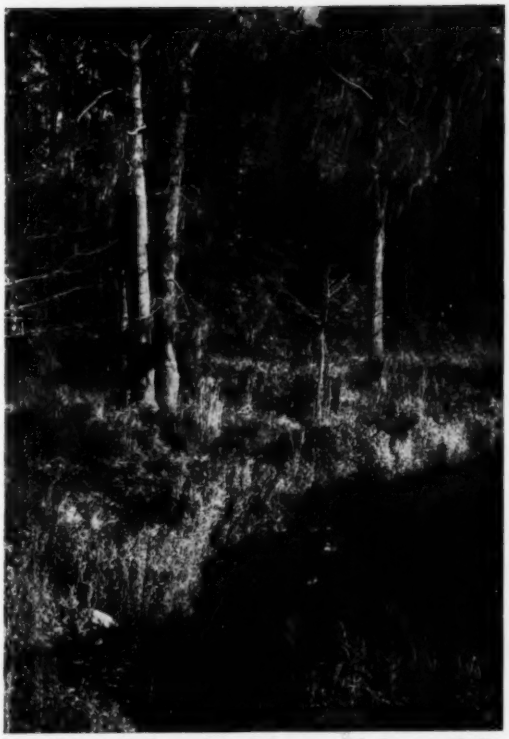
recognized that the needs of the people themselves and the proper development of the land would require the removal of most of the families from their present locations. The original purchase therefore included a considerable acreage of land with good clay subsoil, such as is found in some scattered sections of the sandhills, to be used for relocating the families. Under revised plans for the project, 1,263 acres of this good land have been transferred to the Farm Security Administration. Plans have been made for the resettlement of 27 selected families on this land as soon as the farm units are developed.

Sixty families have already relocated largely on their own initiative or with the guidance of the project manager and his associates. The success of the relocation of these families may be attributed in large part to the project's active interest in the families and its intimate knowledge of them, their needs, and the existing opportunities in the area. The project manager not only advised individual families of possible opportunities but also personally assisted them in working out detailed arrangements and in securing financial and other assistance needed.

Plans are under consideration for leaving 18 of the remaining 29 families on project lands. These families will be located conveniently to schools, roads, and other public facilities where small areas of land suitable for cultivation will provide a subsistence and perhaps some cash income. The cash income will be supplemented largely by employment afforded in connection with the project. The 11 families for which relocation plans have not worked out are living on lands in process of acquisition or recently acquired with title III funds. These families will be granted temporary use and occupancy agreements pending the development of plans for relocation.

From the inception of the project, State officials were consulted and have closely cooperated with officials of the Federal Government with respect to plans and development work. On April 20, 1939, the project was made available to the State under a cooperative and license agreement providing for the management of the area by the State Commission of Forestry, as a demonstration embodying the principles and objectives of planned multiple land use directed toward the ultimate establishment of a permanent rural industry.

Under this agreement the State assumes the administrative responsibility for the management of the project for an initial period of 50 years, with automatic renewals totaling an additional 45-year period. The agreement outlines the management practices to be



Something of the original beauty of the sandhills country is seen in this jungle-like growth along the lower edges of Big Bay, largest of the seven lakes in the Poinsett land-utilization project.

followed, which include the application of a forest program on a sustained yield basis, a wildlife program designed to increase the wildlife habitat on the area with provision made for controlled hunting and fishing insofar as a surplus of fish and game are developed, and the operation of existing recreational facilities for the use and benefit of the general public.

Any income and revenue received from the area is to be used by the State in the management, maintenance, and protection of the project lands. The United States retains title to the lands and maintains a custodial responsibility to assure the management of the project in accordance with the purposes for which it was established. The Secretary of Agriculture has placed the custodial responsibility for this project in the Soil Conservation Service.

The management of the Poinsett project by the State Commission of Forestry, as outlined above, is in accordance with a policy established by the Department of Agriculture in connection with a national conservation program to integrate Federal and State objectives and to supplement the State's program.

READJUSTMENT OF POPULATION TO LAND RESOURCES IN NORTHERN MONTANA

By H. L. LANTZ [1]

THAT portion of northern Montana lying between the Missouri River and the Canadian line, comprising Blaine, Phillips, and Valley Counties and including an area over twice the size of Connecticut, has become a new frontier. These counties, embracing the Milk River land-use adjustment project of the Soil Conservation Service and the Milk River farms project of the Farm Security Administration, have become the proving ground of a program of adjustment of people to land resources.

Crossing the Missouri from the crowded ranges of central Montana, early cattlemen found an almost unlimited range. Range grass grew knee high on the benchlands. Beaver-dammed creeks and spring coulees spilled their overflow to flood-irrigated rich bottoms where even in the winter stock could "rustle" for feed. The rough badland areas provided shelter and early spring feed, with water available during the long dry season.

Charley Russell, who knew every foot of the country and whose oils and watercolors have captured the very spirit of those first frontier days, wrote in a letter to a friend, "It's all grass upside down now."

The backwash of a financial panic, the empire-building plans of transcontinental railways, and the urge of a new generation to find new lands and new opportunities resulted in this vast public domain being thrown open to homesteading. It is stated that President Theodore Roosevelt recommended that a strip of public domain land a township wide on each side of the Milk River irrigation project be reserved from homesteading as grazing land to supplement the income of the irrigated valley. This sound land-use plan was never adopted because the pressure groups, who believed that a family should make a good living on any 320 acres of dry land, succeeded in having it opened for homesteading.

By this time the big cattle outfits had disappeared and smaller independent ranchers had settled along the creeks and rivers. While utilizing the benches and badlands for summer grazing, they harvested prairie hay, raised feed crops, and developed small irrigation projects. Their irrigation systems followed the plans of the beaver, and early spring floods guaranteed them winter feed. The prairie was still unfenced and neighboring ranchers lived 10 to 30 miles apart.

But overnight this era passed and the country became a frontier for farmers. The sleepy little cow towns awoke to hectic activity. Bewildered citizens struggled to meet the needs of the newcomers. The single dusty street lined with false-fronted general stores, saloons, and livery barns grew to a dozen streets. Little hotels, crowded beyond capacity, laid cots end to end in the corridors. New restaurants, stores, and homes sprang up overnight with the sounds of hammer and saw, the creak of loaded wagons. The prairies were hub-deep in dust stirred by wagonloads of supplies being hauled from town by the "dry-landers." The prairies were checkerboarded with plowed fields and the coyotes retired to distant hilltops to shrill their uneasiness.

Those first few years after the virgin prairie had been plowed, rains came in abundance and at the right time. The good rich soil, undisturbed in the centuries of its mellowing, yielded amazingly. The "dry-landers" harvested bumper crops; machinery dealers and shopkeepers reaped profits, and more and more land seekers came west to seek their fortunes. No one paid any attention to the warnings of old timers that dry years would come.

Then, to the confusion of the newcomers, the rains stopped. Hot winds seared the new grain and year after year the land did not return the seed.

The fact that thousands of acres of northern Montana soil was submarginal for continued cultivation was ignored. The fact that over a period of 70 years, as established by weather records, more dry years than wet years had occurred, was not taken into consideration until thousands of dry-land farmers had failed, abandoned their homesteads and left the country or became subsidized by a Government doling out seed loans, feed loans, summer fallow loans and finally, subsistence loans which tended only to perpetuate the vicious circle.

Recommended practices and crops over a 10- or 12-year period included rodent control, large-scale corn production, summer fallow with dust mulch, summer fallow with cloddy mulch, big team hitches, tractor farming, growing of certified seed, alfalfa planted in rows, potatoes, dairying and poultry

[1] Project manager of the Milk River land-use adjustment project, Soil Conservation Service, and of the Milk River farms project, Farm Security Administration, both with headquarters at Malta, Mont.

raising, and many more. Looking back over this period of confusion and frustration it is easy to see that any number of "little facts," all perhaps valuable in themselves and under proper conditions, were useless as cure-alls. For instance, the growing of dry-land corn—commendable, certainly—was recommended as a solution of the feed-crop failure problem. The only flaw was that often the spring months were so dry that crops did not come up at all and even the gophers were hungry.

The complete and final collapse of the dry-farm era saw the once luxuriantly grassed and plentifully watered country in a state approximating that of a desert. Topsoil blown from barren, plowed fields drifted over fences and buildings. Fences piled high with tumbleweeds collapsed and blew across neglected roads. Ranchers, driven into bankruptcy because their range land had been homesteaded, were unable to keep up their irrigation systems, lost their stock and left the country. The accumulated livestock of the remaining ranchers and farmers, turned out to rustle on abandoned land and public domain, had overgrazed the pasture in the vicinity of range water. Acres of good grass could not be utilized because drought had sapped the natural springs and water holes.

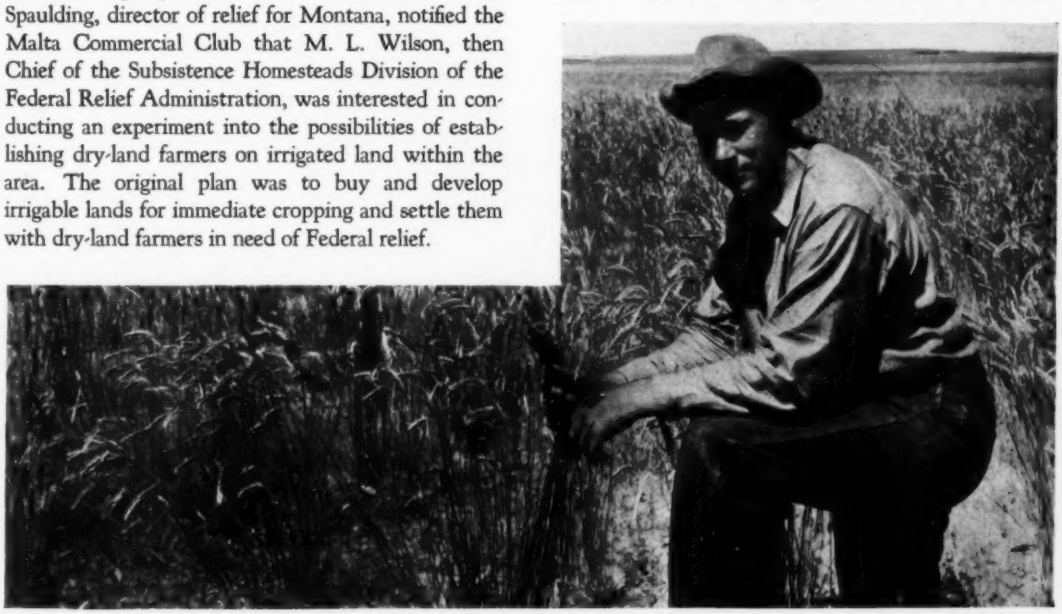
In 1933, the third year of an exceptionally dry period, and a year after the National Red Cross had declared that an emergency existed in northern Montana, T. C. Spaulding, director of relief for Montana, notified the Malta Commercial Club that M. L. Wilson, then Chief of the Subsistence Homesteads Division of the Federal Relief Administration, was interested in conducting an experiment into the possibilities of establishing dry-land farmers on irrigated land within the area. The original plan was to buy and develop irrigable lands for immediate cropping and settle them with dry-land farmers in need of Federal relief.

Out of that move and through the land-use adjustment work already initiated by the Montana Extension Service have grown the Milk River projects and the task, assumed by the Soil Conservation Service and the Farm Security Administration, of changing the agricultural pattern of an area of 7,000,000 acres.

Success of the combined jobs means the return of these millions of acres of submarginal prairies to a planned stock-raising industry and the restriction of farming to the irrigated Milk River Valley, which meanders through the center of the project, or to smaller irrigable tributaries yet to be developed and to a few scattered communities where soil and proper tillage methods are favorable for some types of large-scale, mechanized, grain farming.

The basic fact, upon which both projects are predicated, is that the resources of the three counties are ample for their population. There is land to spare for livestock raising, and the removal of families from these submarginal areas to other States or counties is unnecessary because they and many others can be resettled on irrigable lands in the project area and in the very county in which they have lived.

In the Milk River Valley, the farming population should be concentrated along the creeks and in areas where storage reservoirs may provide irrigation water to be used on the better soil types. Sixty thousand acres of irrigable, undeveloped lands in the area are



This growth of crested wheatgrass, a result of the application of soil and moisture conservation practices, was obtained on purchased land once abandoned as being worthless.

available for the resettlement of from 500 to 600 families. Good homes, modern conveniences, school facilities, roads and opportunities for social growth can be provided. On these developed farm units, sugar beets, corn and potatoes, can be grown for cash crops with alfalfa, small grains and feed crops for wintering range livestock. Supplemented by dairy cattle, garden produce and poultry, these farms will provide good livings for farmers who have gambled and lost for years on the dry land.

The removal of farmers from the submarginal range areas will permit reestablishment of the livestock industry. Sound management of spring, summer, and fall grazing on the uplands, and production of winter feed in the irrigated valleys, should be continued as practices that were successfully followed in the 1890–1910 period. Livestock ranches originally established on such a basis but forced out of business when they lost their ranges are again starting operations with the assurance of summer range, and they are developing the lands to produce more and better winter feed.

The Soil Conservation Service has gone a long way toward readjustment of the population to resources through purchase and retirement of lands unsuitable for cultivation and development of such lands principally for grazing use by farmers and ranchers remaining in the area. During the period extending from the establishment of the submarginal land-use adjustment program to July 1, 1939, submarginal land to the amount of 970,198 acres has been purchased at a total cost of $2,581,800.

The rebuilding of this land has been the means by which many of the families have subsisted during the interim. Scattered over this purchase area 339 stock water reservoirs have been constructed; 59,704 acres have been reseeded to grass, and 35 springs and wells have been cleaned out and improved; 658 farmsteads have been obliterated; 482,000 acres have been covered in a rodent eradication campaign; and cattle guards, highways, terracing and tree planting projects have been completed.

In the project area, 11 cooperative grazing associations have been organized. They operate under the Montana grass conservation law and the Taylor Grazing Act. Public-domain lands and Soil Conservation Service lands are administered by the grazing associations in cooperation with the Division of Grazing. State, county, corporate, and privately owned lands are leased by the associations for the use of their members. Ranchers and farmers remaining in the area are allotted summer range on the basis of commensurate property and prior use and dependency. Farmers located on developed irrigable lands in the Milk River Valley use community grazing pastures blocked out with Soil Conservation Service purchased or other leased lands near their irrigated farms.

The Soil Conservation Service has not devoted itself entirely to the rebuilding of the range but has cooperated with the United States Biological Survey in the conservation of wildlife. Food and cover have been planted in the shallow portions of stock water reservoirs as encouragement to nesting wildfowl. Bass, crappies, perch, sunfish, and catfish have been planted in the larger reservoirs.

Upon the theory that "man cannot live by bread alone," the Soil Conservation Service has developed three recreation centers for the people who live in this once desolate land. From small picnic grounds with a few tables and outdoor fireplaces to a more completely developed recreation site centered around a flowing hot-water well in Phillips County, the area's needs from the standpoint of recreation have been provided. It is estimated that 45,000 people visited these centers the past year.

Of the original 901 families in the submarginal purchase area, 403 have moved by personal choice to other parts of the State or to other States. Other families have adjusted themselves to industries other than agriculture in the towns within the area, and approximately 40 families have been able to purchase farms in the irrigable Milk River Valley with their own resources. With the limited funds provided for the purchase of land and its development, and the construction of homes and farm buildings, 156 of these displaced families have been resettled in the Milk River Valley by the Farm Security Administration.

A recent survey conducted by the Farm Security Administration indicates that 79 families, all of whom sold submarginal land to the government, must still remove from the dry-land area. Forty-four families will be able to locate themselves, nine are problem cases for other agencies to handle, and 26 families should be resettled by the Farm Security Administration.

The program of the Farm Security Administration has complemented that of the Soil Conservation Service by developing lands suitable for cultivation and extending financial assistance and guidance to families living on lands purchased and who are interested in the farm units developed by that Administration. The lands used for this purpose were almost entirely undeveloped before acquisition by the Farm Security Administration. Development consisted of leveling fields, construction of ditches and drains and other irrigation structures, building of roads, houses, and

other farm buildings. The first land was put into production in 1936 when 814.5 acres were farmed. It is estimated that by the spring of 1940, 11,757 acres will be in production.

There are two classes of resettlement clients, those who lease or purchase farm units and those who lease labor units. The farmer client has a unit of from 80 to 160 acres. He raises sugar beets, potatoes, small grains and feed crops, supplementing his farm income with dairy stock, a farm flock of sheep or poultry products. His surplus feed may be utilized by the purchase of feeder lambs or steers in the fall. In some cases he owns range stock. He buys his feeder stock from ranchers in the area and in this way aids in balancing the production picture in northern Montana. He is doing much the same thing as the older generation of stockmen did. He is using irrigable lands to produce feeds to finish the stock raised in the submarginal range areas. But he is doing more for he is getting his living, his few luxuries and a cash income in addition from his irrigated farm. His children are attending good schools. His wife has modern conveniences in her home and the family is interested in building the social structure of the community.

Then there is the second class of client. This class consists of former farmers from submarginal areas who have secured part-time employment, working either for farmers in the community or doing other types of labor. There are 31 family units of this type in the project. These are located adjacent to a town or village. The units vary in size from 1 to 5 acres and provide a garden spot, a feed plot for a cow or pigs, a good house, barn, and poultry house. Here the part-time worker can house his family and make the greater part of the family living from the land. The family is close to good schools and the land has been developed for efficient irrigation and maximum production. A small rental includes house and land. Future farm clients are usually selected from the more aggressive operators of these family labor units.

As an indication of the progress made by farmer clients, it is interesting to note that approximately 5,000 head of sheep and dairy cattle have been purchased in the past year. Farm flocks averaging about 100 head of ewes and the addition of from one to four dairy cows to the farm herd have been made by 95 clients.

Security for old age and for children, happiness in the building of a home and the satisfaction of bringing crops to a harvest should be the rewards of the farmer in any land. It is a big task—this readjustment of population to land resources. But when it is completed every soil type and every farm should be adjusted to its best use, and every community and every family guided toward providing for themselves the best security the resources of the area can furnish for social and economic well-being.

THE LAND PURCHASE AND DEVELOPMENT PROGRAM IN BACA COUNTY, COLO.

By NORMAN G. FULLER [1]

BECAUSE the appalling "black roller" dust storms, which first focused attention on the Dust Bowl, have not raged across southeastern Colorado for more than a year, there is a growing belief that the Dust Bowl has disappeared. It is true that control measures gradually are cutting down on wind erosion. But the Dust Bowl is not far away, lurking under a cover of Russian thistles that will roll away with the first spring winds, or temporarily held in check by sorghum stubble that will hold the soil for 1 year, but probably not for 2 and certainly not for 3. Blowing soil can be stopped, but the fundamental causes of blowing soil present a far more stubborn problem.

In Baca and eastern Las Animas Counties, Colo., there still remain thousands of acres of wild land, without a green spear growing on them. Sand and dust sift eternally across these acres, engulfing fences and roads and creeping into adjacent fields. Abrasive, blowing sand still is cutting the grass from depleted pastures. Soil sifts along only a foot or two above the ground, carried by constant prevailing winds, but it is doing more damage than the "black rollers" did. It merely takes a little longer time, and it makes up in persistence what it lacks in speed.

In Baca County it is significant that the Federal and local agencies now have settled down to a steady, purposeful campaign. After working relatively independently for several years the various agencies recognized that no one agency or group could master the situation alone. They then began to combine their forces in order that each agency would function as an integral part of one large mechanism, capable of coping with the problem. The results of this coordination already can be seen on the land itself.

[1] Project manager, Southern Great Plains Region, Soil Conservation Service, Springfield, Colo.

In the Spring of 1938, this spot was at the center of 10 thousand barren, blowing acres. Farmers and Western Baca District, working together, planted cover crops and reclaimed more than half of this wild area in 1939. The district and the farmers financed the work by loans from the Farm Security Administration, secured by Agricultural Adjustment Administration payments. Broom corn, cane, and Sudan grass here grow lush on a tract purchased by the land utilization project.

Like most High Plains areas, Baca County has gone through the historic cycles of stock raising, homesteading, land boom, collapse of the boom, and land abandonment. Drought and depression added the finishing touches. The farmer who remained on his land found through the dismal years that his worst enemy was his neighbor's land. No matter how hard he worked to protect his own land, the thousands of wild acres around him poured sand and silt upon his holdings, wiping out his crops and pastures.

The tremendous acreage of wild lands in Baca County presented a menace with which remaining farmers could not cope without help. Obviously these wild acres resulted from land misuse, largely the prevalence of cash crop farming. Proper land use can be achieved, therefore, only by a change in the farming economy. Farmers now agree that the best way to make a living is to change from cash crop farming to diversified farming with emphasis on livestock. To run livestock successfully and diversify their farming the operators must have larger units and more grass. One-year leases are customary throughout the area at present and to encourage the establishment of larger units the operators should be assured greater security of tenure on leased lands. Furthermore without long-term leases farmers cannot afford to effect conservation practices necessary to restore the depleted soil and grass resources in the area.

On the other hand, nonresident landowners, who constitute a majority in Baca County, are reluctant to tie their land up with long-term leases. They hope that a bumper year will come along when they can either farm the land themselves and regain part of their losses, or sell it. This situation caused one local farmer to remark, "The worst thing that could happen to this country right now would be three good years."

These points indicate the complexity of the factors entering into the readjustment of the county's farm economy and abandonment of the cash crop basis. Early in 1938, the land-purchase program was inaugurated in the area by the Department of Agriculture, and the western Baca County soil conservation district was formed. Late in the same year the southeast Baca County soil conservation district was organized. These three agencies were designed specifically to deal with the problems of wild lands and they formed the missing parts in the mechanism needed for a unified assault on the county's basic problems. In April 1938, the Federal Government began to take options on tracts of land which, because of poor soil, abandon-

ment, and lack of vegetative cover, were potential hazards to the better farms in the county or failed to bring adequate returns to their owners. To supplement this program the two soil-conservation districts leased and put under control many tracts of wild land which the Government was unable to option as well as many optioned tracts on which title clearance had not progressed sufficiently to permit the Federal Government to spend stabilization funds.

In 1939 the two districts and the land-utilization division planted cover crops on some 40,000 wild acres, with excellent results. During 1940, it is quite probable that the Government will be able to treat all of its optioned acreage, and thus permit the districts to devote their full attention to nonoptioned lands. With the districts and land-utilization project taking care of the worst wild lands, neighboring farmers are leasing the remaining lands and farming them. The districts and individual farmers finance their erosion-control work on these lands with loans from the Farm Security Administration.

The western Baca district includes, roughly, the entire west half of Baca County, totaling about 850,000 acres. The southeastern Baca County soil conservation district includes 370,000 acres, or slightly less than one-fourth of the county.

The Government purchase project area of 1,175,000 acres includes all of the western Baca district, 4 townships on the western side of the southeastern Baca district, and a strip 10 miles wide and 30 miles long extending through eastern Las Animas County. There is no district organization in the Las Animas County portion of the purchase area. Under the purchase program, 240,000 acres were under option on December 15, 1939, at an average cost of $3.25 per acre, including improvements.

Previous to the entrance of the land-utilization division and the districts into the county, the Soil Conservation Service's 25,000-acre demonstration project, established in 1935, had shown what can be done, in this area of low rainfall and high prevailing winds, by proper tillage and use of water-control and retention structures. The C. C. C. camp under its jurisdiction had completed an impressive amount of this control work. The districts and land-utilization division adopted these proved methods in their control work. When the two districts were formed, they entered into agreements with the Soil Conservation Service for technical assistance and power equipment. The Farm Security Administration and the Soil Conservation Servce are working together in the reorganization of farm and ranch units.

From its inception in 1934, the land utilization program in the Great Plains has had one major program and one major objective—the purchase and restoration of the poorer lands in a community to permit reorganization of unit operations. Five years' experience have proved that the program and the objective are sound.

Complete reorganization of a majority of the operating units in the county would be an ideal means of establishing proper land use. Reorganization, however, is not a separate, independent, solution; the real solution must embody the combined objectives of all the various programs. The properly reorganized unit involves stability of tenure through long-term leases, adequate land resources for the specific operation and efficient use of cropland, range, and water facilities. In many localities, an obstacle to unit reorganization has been the relative density of population. There are not sufficient grass resources and good farm land available for all. The land-purchase program is thinning out the population, enabling certain families to sell their holdings and seek new locations, and making additional land available for those who remain.

With possession of the purchased lands, the Government is able to take a hand in the efficient reorganization of surrounding lands, and to guide and encourage proper use of lands in the affected community. Poor lands are always a severe problem to surrounding localities. Through Government purchase and restoration to their best possible use, the submarginal lands in a community become an asset to the adjacent farmers and ranchers.

LAND MANAGEMENT

(Continued from p. 206)

safeguards to prevent abuses must all be taken into consideration in laying down criteria or rules for the distribution of the privileges involved. Each type of project has a different type of problem in this connection, and even in projects of the same type, there are conditions which require some difference in treatment. Without a well-established basis for granting use privileges the objectives of the project might never be attained.

The program of relocating and rehabilitating families has been satisfactorily accomplished where opportunities existed for such relocation. In a limited number of instances opportunities were created for these families through establishment of resettlement projects by the Resettlement Administration or the State

(Continued on p. 220)

FIVE YEARS AFTER LAND UTILIZATION CAME TO BROWN COUNTY, IND.

By MARY H. SANDERS [1]

I STOOD in the doorway of a log cabin that perched on the brow of a hill and I gazed across the valley to the rim of "Bear Wallow." Tree-clad slopes were covered with a mantle of autumnal golds and russets. A distant blue haze blended into a soft October sky. "What a beautiful view!" I exclaimed.

"Yes, but you can't eat it," said the old woman who stood beside me. She had lived all her life in the hills of Brown County, Ind., in this same log cabin.

Later, I thought again of the old woman's remark and it seemed her comment epitomized the history of Brown County. For nature has endowed the county with a wealth of natural beauty but this beauty is only surface deep. The soils on the slopes are thin and poor. The farmer who seeks to derive a living from the hills finds the land produces scanty crops. Only on the farms in the narrow valleys between the hills is the soil rich enough to be really productive.

It was this paradox of scenic wealth and rural poverty which confronted the Federal Government when it initiated its program of land-use adjustment in Brown County. Over a quarter of a century earlier, a group of landscape artists established a colony at Nashville, the county seat and largest town. The colony has grown and prospered. A gallery has been established to exhibit the work of the Brown County painters—a gallery which has attracted visitors from every State in the Union, as well as travellers from many foreign countries. A number of the artists in the colony have established homes and studios here; some remain throughout the year while others come for the blazing fall and verdant spring.

The Hoosier humorist, Kin Hubbard, for many years publicized the rustic life of Brown County through his writings about the homely rural philosopher, Abe Martin, whose daily comments made familiar such community names as Bean Blossom, Gnawbone, Needmore, Bear Wallow, and Weedpatch Hill. In memory of Kin Hubbard, the beautiful lodge of weathered timbers and native stone in the 15,000-acre State park in Brown County has been named for Abe Martin.

Tourists who visit Brown County have become the most lucrative local business. Hotel accomodations are taxed to capacity each week-end from early spring to late fall. Gift shops abound. Pottery, wood carvings, woven baskets, rugs, and dozens of other items find a ready sale. The revenue derived from such handicraft augments many a farm income.

In contrast to the flourishing activity which the tourists have brought to the communities and farms on the State highways is the quiet life on the farms which are located back in the hills on the unimproved roads. Local citizens told me, when I visited the county last fall, that the depression had never really hit the "native" farmers of Brown County because the living standards of the average farmer of that county were so much lower than the depression level. The average annual cash income, they said, is not more than $150.

Estimates vary, however. One farmer living within the land-utilization project claimed that he and his family were able to live on an annual cash income of $24, depending upon barter to meet their other needs. On the other hand, one economic survey of the families living within the project area set the average net cash income for 1934 at $292.

The years from 1890 to 1900 seem to have covered the peak period of population and prosperity for the county. In 1890 the population was 10,308, while in 1899, the banner year for crops, there were harvested 16,238 acres of corn and 11,206 acres of wheat. The natives say that back in those better times the land was rich enough so that the farmers were able to raise sufficient crops to feed their families and their livestock. They cut timber as their cash crop, and from its sale they were able to live comfortably. By 1900 most of the merchantable timber had been cut from the forests and the soil was becoming so depleted that crop returns were small. Families began to move away and most of the young people went to the cities to find work. In 1930 the census reported a total population of 5,168, or approximately one-half the number 40 years before. Of the 5,168 persons residing in the county, 2,216 were under 20 years of age, only 872 were between the ages of 20 and 35, and 2,080 were over 35 years of age.

When the depression began to be felt in the cities and unemployment figures mounted steadily, a back-to-the-land movement started in Indiana, as well as in other agricultural States. In Brown County the

[1] Division of information, Soil Conservation Service, Washington, D. C.

number of farms in operation jumped from 874 in 1930 to 1,204 in 1935, a gain of 38 percent in the number of farms. Although there were 330 more farms on which families were living, only 663 additional acres of land were sowed to crops in 1934 than were in cultivation in 1929. Many of the reoccupied farms were small in size. The new owners or tenants did not have farming equipment, nor were they financially able to purchase machinery or stock for their farms. About 21 percent of the newcomers had no previous farm experience. A survey [2] of this back-to-the-land movement in southern Indiana was made by Purdue University, which determined that in poorer townships such as characterize those portions of Brown County where the Government has purchased land, 36 percent of these newcomers owned their homes, 39 percent were renters, 13 percent lived with relatives, and 12 percent were occupying property without previous arrangement with the property owners. In many instances these newcomers were returning to land which had been abandoned previously because the owners had been unable to make a living on the land.

The amount of poor relief paid by townships affected by this back-to-the-land movement mounted steadily. In 1930 Brown County relief payments had mounted 348 percent above normal and continued to increase each year until the first 5 months of 1934 showed an increase of 1,513 percent.

This back-to-the-land movement was also working a hardship on the school facilities. In Brown County the one-room school house is still common. It was necessary to maintain schools and provide transportation for the children of these newly arrived families. State school aid funds had to be drawn upon heavily. In one locality tax returns are so low that the township would be able to operate only 9¼ days per year if it were dependent solely on its own funds for operation.

This was the situation in Brown County when the Federal Government initiated its land-use adjustment program in 1934. The site of the land buying project was established in the western section of Brown County. Nearly 20,000 acres have been acquired by the Government.

In converting these acres to more suitable land uses, a program of development work has been carried out. The largest single piece of construction is the dam that impounds the waters of beautiful Yellow-Wood Lake. On the shores of the lake there has been developed a camping and recreational area.

[2] The Back-To-The-Land Movement in Southern Indiana. Purdue University Agricultural Experiment Station Bulletin 409. 1936.

A glimpse of Yellow-Wood Lake, Brown County, Ind.

Approximately 33 miles of dirt roads within the project area have been rebuilt and resurfaced with native gravel and sandstone; truck trails have been constructed for firefighting; firebreaks have been built where none of this work had been done before; the forests have been cleared of fallen timbers and brush; 1,609 acres have been devoted to tree plantings and seeding; in addition to the large dam, two smaller impounding dams have been constructed to provide fish and migratory-bird habitats; game shelters have been constructed; Yellow-Wood Lake has been stocked from two fish-rearing ponds on the project. In clearing up the project lands 97 farmsteads and 64 miles of old fences have been obliterated.

All of this work has involved many days of labor—labor which has provided a livelihood for a large portion of the Brown County population. In 1936 and 1937, at the peak of the work, a monthly pay roll of approximately $40,000 was dispensed in the county. Project Manager Walter H. Bowyer has estimated that the pay roll fed about 1,300 persons, including the families of the men employed and representing 25 percent of the county's population.

The school problems have been helped in Brown County as a result of the land-buying program. During this past year two one-room schools near the project were closed because the families had moved from the area. Other schools have been closed during the past 4 years, thus eliminating salaries, maintenance costs, and transportation expenses. The schools have also benefited from a higher income as they received their share of money from delinquent taxes paid at the time title to land was transferred to the Government. The school-fund mortgages have been reduced as these liens against properties were also liquidated when payment was made for the land.

Brown County is in a better financial condition today than it has been for many years. This fact is attested by the county treasurer, Arthur Coffey, who states that he attributes the situation to the sale of land to the Government.

When the land-buying program was getting started back in 1934 and 1935, one of the objections most often heard was that the retirement of land from the tax rolls through its purchase by the Federal Government would create a greater tax burden on the remaining property owners, or deplete the income of the counties affected. Government officials hoped that savings effected by eliminating the maintenance of public facilities, such as schools and roads within the project area, would offset a reduction of income from taxes paid to the county.

While in Brown County I visited the treasurer's office and inspected the tax books; I found that not only is Brown County able to save through a reduction of expenses in maintaining roads in isolated sections and operating schools with small pupil attendance, but there has been an increase in the net value of taxable property and a steady decline in the tax rate during the past 5 years.

In 1934, before any land had been paid for by the Government, the net value of property in the three townships where the Government was acquiring land was set at $1,279,020. In 1939, after more than 19,000 acres had been purchased and withdrawn from the tax rolls, the net value upon which taxes were assessed, was $1,351,910, or an increase of $72,890. This increase of net value of property is largely due to an increased valuation of improvements and personal property on lands which are taxed. Thus, the land-buying program has cleared from the tax books a large portion of the delinquent taxes and has removed permanently from the tax rolls thousands of acres which have a history of continued tax delinquency. Since this burden of uncollected taxes has been removed, the better lands are assessed at a lowered tax rate.

Thus far attention has been directed toward the improvements to the county which have resulted from the land-buying program. What of the people formerly residing on the land?

There were 67 families residing on the lands which have been purchased by the Government, each of which was struggling to eke out a precarious living. Sixty-two of these families have relocated outside of the project area, nearly all of them still residing in the county. The older men and women wished to remain near where they had been born or had lived for most of their lives. Five families of elderly persons remain in the project area, three of them with life leases. Instead of living on roads which were impassable during the winter and spring, the relocated families now live on or near the main highways on surfaced or graveled highways. Many live in better houses, their children have better access to schools.

As previously shown, the lands themselves are being used for economically desirable purposes. Infertile fields are being returned to forest; wildlife is being encouraged to return to the woods and streams. Fishing and hunting will be permitted but will be controlled.

Many local families who have never known such privileges before are now enjoying the pleasures afforded at the beautiful Yellow-Wood Lake Park, for which no admission charge is made. Last year the men who worked on the project planned a picnic and brought their families. Some of the wives said the occasion was the first time they had been beyond their front gates in nearly 3 years.

In summarizing, it can be said that the county government, the businessmen, and some of the farmers of Brown County have profited by the land-buying program. The tourists' and the sportsmen's interest in the county has increased, and, as a result, the businessmen are enjoying better business conditions. The farmers have a better market for their handicraft and produce. Tax rates have declined during the 5-year period. The once magnificent forests are being restored and this source of permanent wealth will again be one of the valuable heritages of Brown County.

Announcement

"The Lost Agriculture of Trans-Jordan"—the fifth of Dr. Lowdermilk's notable series of articles—will appear in the March SOIL CONSERVATION.

A submarginal farm in the Hector project area.

LAND-USE ADJUSTMENTS IN SOUTHERN NEW YORK

By JOHN P. JONES [1]

THE Hector land-use project in south-central New York State represents a pioneer effort in the Northeast to develop pastures for community use. The project is intended to serve as a demonstration and it is, to some extent, experimental. It will afford an opportunity to evaluate the benefits derivable from an agricultural adjustment directed toward a more extensive land use assisted by public purchase and improvement.

The project area, covering 43,000 acres in Schuyler and Seneca Counties, is generally typical of large tracts of submarginal land scattered over a 10,000,000-acre problem area in southern New York.

Most of the poor land areas are found in the uplands of the glaciated northern Appalachian and northwestern Appalachian plateau country. Throughout this region, which extends from southwestern New York to the Hudson River and down into the first tier of Pennsylvania counties, the plateau has been cut by many streams, often to depths of 600 to 900 feet and leaving long, flat top ridges supported by narrow valleys, with the valley slopes usually quite steep.

In this area of 10 million acres, including both upland and valley lands, more than 4 million acres are classified by the New York State College of Agriculture as submarginal land. More than 2 million acres are in land class 1, which takes in areas largely wooded or idle. Nearly 2 million acres are in class 2, which includes those areas better adapted to forestry and recreation than to agriculture, but in which considerable farming is done.

[1] Regional conservator, Northeastern Region, Soil Conservation Service, Upper Darby, Pa.

Despite the fact that abandonment has taken place over a long period, and that around a million acres of land have been abandoned for farming since 1900, approximately 78 percent of the area is still in farms.

The important causes of farm abandonment and present land-use problems in these two submarginal land classes of the uplands may be summarized as follows: (1) Exhausted timber supply; (2) low crop yields due to poor soils; (3) continued production of grains and intertilled crops on lands better adapted to forestry and grazing; (4) loss of markets for timothy hay and grain; (5) use of available private and Federal credit to maintain a poorly adapted type of farming; (6) comparatively high cost of public services in relation to the income producing power of the land; (7) soil losses on cultivated slopes, due to erosion; and (8) inaccessibility, poor roads, and inadequate public services.

The most serious erosion problem is on shallow upland soils where cultivated crops are grown on excessively steep slopes. On such soils and slopes sheet erosion has removed much of the topsoil.

In the poorer upland areas, roads, schools, and farm and home conveniences are far below the average for the State. Only 15 percent of the occupied farms and 36 percent of all rural residences in land classes 1 and 2 are on hard roads. Farms in these land classifications are almost entirely without electric service. Only 18 percent of the farms and 14 percent of all rural residences have telephones. Educational services are both inadequate and expensive. In school districts entirely on class 1 land, the average current expense per pupil is approximately $151, as compared with $82 in districts where less than one-half the

land is submarginal. The State furnishes the bulk of funds for roads and schools in these submarginal land sections.

Surveys made throughout the problem area by both State and Federal agencies indicate that the major improvements outlined below would facilitate better land utilization, and that most of them should be initiated at public expense:

1. *Forests and forest land.*—Potential forest areas should be planted. Provision should be made for adequate protection against fire and grazing. Stand improvement work should be carried out in certain areas where undesirable trees tend to inhibit the growth of valuable species. Facilities for harvesting and treating forest products should be established.

2. *Pastures and Meadows.*—Potential grazing areas should be fenced. Adequate water facilities should be developed in each pasture. Lime and fertilizer treatments should be applied where necessary. Barren or idle lands should be seeded to pasture species; and brush removed from lands to remain in pasture. Proper additional erosion- and flood-control measures should be established. Potential meadow lands should be limed and fertilized and meadows not now supporting good stands of forage plants should be seeded.

Since the Hector project area is typical of a large part of the entire problem area, the Service is carrying on three major lines of development—pasture, meadow, and forest—with special emphasis on utilization of land for public pasture and meadow purposes.

It is believed that a large part of the approximately 1,300,000 acres of submarginal land now either in pasture or in cultivated crops, over the whole problem area, can be developed into good grazing land, and that some of the 500,000 or so acres of idle land probably will produce economical pasture if properly treated.

In general, the proposed changes in land use within the project area are the same as those which appear desirable for the problem area as a whole. The change will be from the prevailing combinations of dairy, hay and cash grain farming to the more extensive agriculture which will utilize the better areas of class 1 and class 2 land for community pasture and meadows, and the poor areas for woodlands. According to present plans the area acquired and to be acquired may ultimately contain 5,000 to 8,000 acres of grazing land, 1,000 acres of meadow land, and 7,000 acres of scattered woodlands.

The United States had already purchased under an earlier phase of the land-utilization program, 6,000 acres within the Hector area prior to January 1, 1939. The project plan calls for acquisition, over a 4-year period, of an additional 10,000 acres, of which 6,000 acres were optioned as of January 1, 1940.

Seventy-eight families have been involved in the acquisition of this land. Fifty-five families already have moved from the area; most of them required little or no assistance in relocating after receiving payment for their submarginal holdings.

It is expected that the project will be administered by Cornell University by agreement with the Secretary of Agriculture, and that a cooperative association of farmers and livestock men will operate the project.

It seems reasonable to expect that, with the completion of the acquisition and development programs, the families left within the project boundaries will be self-supporting. Probably also, a considerable number of families living nearby will be materially benefited from the use of pasture, hay, and wood from the area. Actual income always will be low, but the land should produce sufficient revenue, from pasture and meadow service fees and sale of forest products, to make it self-sustaining eventually.

The results of this demonstration in community land use undoubtedly will influence the recommendations of all agencies concerned with the future use of millions of acres of this type of land.

LAND MANAGEMENT

(Continued from p. 215)

rural rehabilitation corporation. In other areas farms were available for rent or purchase and with the cooperation of the Farm Security Administration the status of many of the families was materially improved. Where a continual effort was made by the representatives of the Soil Conservation Service, the Farm Security Administration, and local welfare agencies, other things being equal, a much better job was done; and where opportunities for new locations existed these continued efforts brought good results and the job of relocation was satisfactorily completed. On the other hand, where opportunities were few the job now is only partially complete; many of those relocated were not satisfactorily rehabilitated, and a considerable number of the families still remain on the projects.

In summary it may be well to reemphasize that the management of lands held under title III involves not only utilization of these lands to the maximum, consistent with conservation of basic resources, to improve the welfare of families with inadequate incomes who occupy surrounding lands, but involves also an energetic effort to encourage proper utilization of the privately owned lands of the areas.

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